



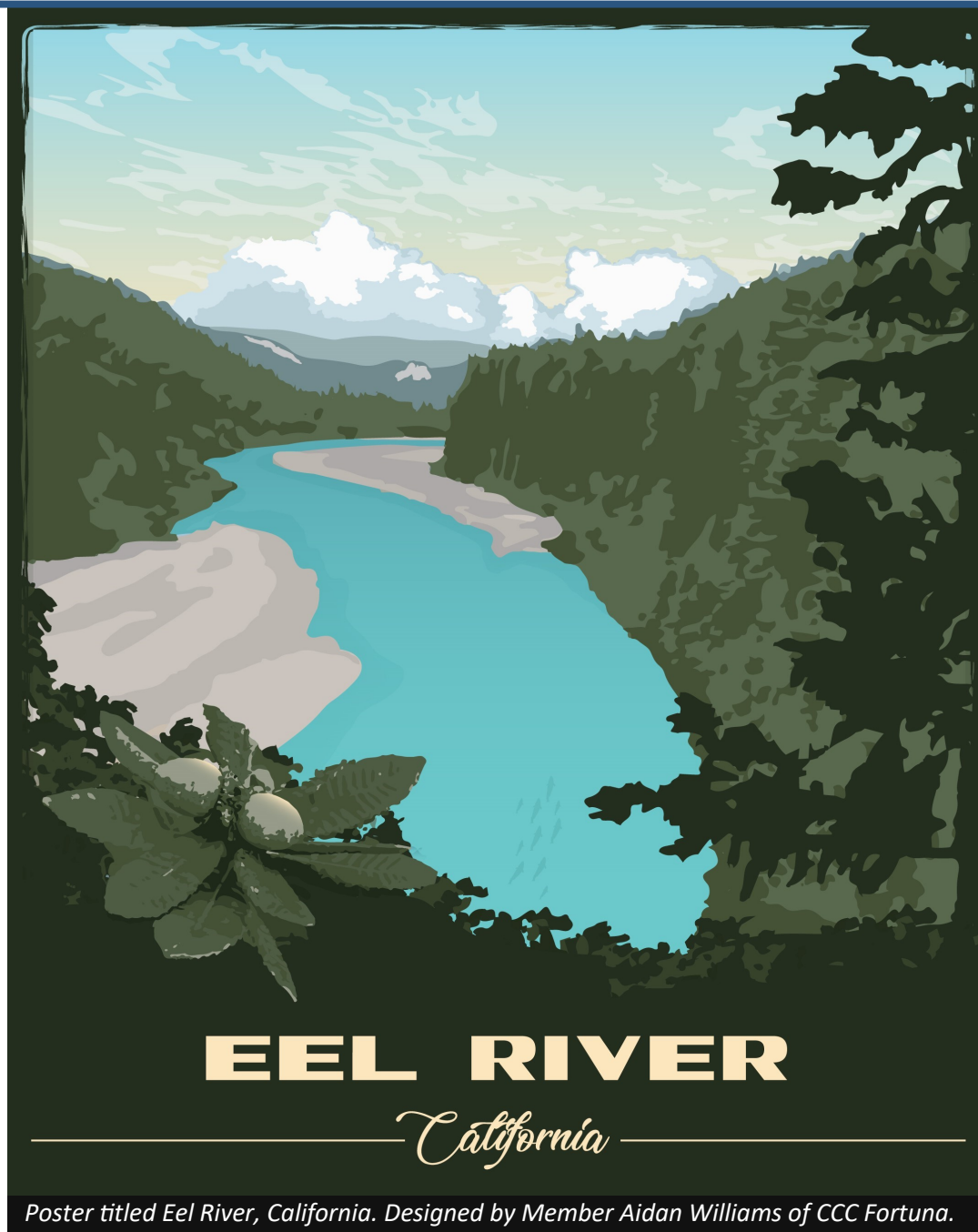
# TRIBUTARY TRIBUNE

Stories and Art by Members of the Watershed Stewards Program

Year 24, District B

*"My Eel River poster was inspired by the nostalgic style of National Park posters. This Eel River poster is a tribute to a majestic watershed, one that I have had the opportunity to work in weekly since I began my term with WSP. As my term continues with the Fortuna Fisheries Office, we will continue to improve salmonid habitat."*

*-Aidan Williams*



Poster titled Eel River, California. Designed by Member Aidan Williams of CCC Fortuna.



A program of the California Conservation Corps, WSP is one of the most productive programs for future employment in natural resources. WSP is administered by California Volunteers and sponsored by the Corporation for National and Community Service.



## Which Came First, the Forest or the Fish?

Kolby Lundgren

A healthy riparian zone is imperative to the health and function of a stream. This relationship is not one-sided. The stream influences the riparian zone by altering nutrient dynamics and patterns of vegetation composition—but the plot always thickens.

The salmon life cycle and the nutrient cycle are intimately connected and co-evolved. Juvenile salmon grow to adulthood in the ocean, gaining 95% of their body mass feeding on nutrient rich prey (Groot 1991), and return to their natal freshwater stream to spawn. They die thereafter, leaving their nutrient rich carcasses behind that, in an act of beautiful regeneration, release nutrients that in turn feed its young. After the carcass dissolves into the soil, it continues to work in extraordinary ways. The decaying carcass of a salmon maintains and reinvigorates the quality of spawning and rearing habitat for future generations by fertilizing their garden—the riparian zone.

Studies, using stable isotope analysis, have shown that up to one third of the total nitrogen in the fruit and foliage of riparian plants comes from marine origin, i.e. spawning salmon (Naiman et al. 2002). Another study demonstrated three times greater growth in Sitka spruce near a stream with spawning salmon than near streams without them. Thus, it would take these trees *a quarter of the time* to reach a diameter (50 cm) that contributes to the creation and maintenance of instream salmon habitat, i.e. large woody debris (Helfield et al. 2001).

It is in these riparian zones where the canopy of trees provide shade. This moderates water temperature which controls the rate of embryo development. The canopy drops leaf litter which sustain aquatic insects, providing food for juvenile salmon. The roots hold soil in place, providing bank stabilization and reducing sedimentation, which can suffocate embryos by interfering with the flow of oxygen and nutrients. Riparian trees also provide a precious resource for instream habitat—large woody debris. This offers shelter to juvenile salmon from high winter flows.

So, which came first, the forest or the fish?



MESHR Member Kolby Lundgren  
holding a lamprey.

Photo credit: Kate Southall

### Citations:

1. Groot, C. & L. Margolis. 1991. Pacific Salmon Life Histories. Vancouver: UBC Press.
2. Naiman, Robert J., Robert E. Bilby, Daniel E. Schindler & James M. Helfield. 2002. Pacific salmon, nutrients, and the dynamics of freshwater and riparian ecosystems. *Ecosystems*. 5: 399-417.
3. Helfield, James M. & Robert J. Naiman. 2001. Effects of salmon-derived nitrogen on riparian forest growth and implications for stream productivity. *Ecology*. 82: 2403-2409.

*"If you want to be remembered  
and recommended, don't just do  
your job, but shine; stand out by  
bringing something special to  
what you do."*

- Sarah Nossaman Pierce

### Dive Into District B, Where You Will Find:

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CCC Fortuna Member Mackenzie Spencer  
holding a Western Toad.  
Photo credit: Trista Dowdy



RRSSMP Member John Clark  
holding a baby Red Bellied Newt .  
Photo credit: John Clark

## Newts by the Water

John Clark

Walking down the meandering creek,  
Stumbling, bumbling and falling along.

To all those who pass me by  
I look clumsy, dopey, dazed and meek.

Falling from a rocky ledge,  
And crawling through the mucky shore  
Searching and scouring for something more.  
Finally, I see my desire by the water's edge.

She looks beautiful with her glossy black silhouette.  
Staggering orange shades run through my mind.  
She's stolen my heart and left my wits behind.  
Confidence wavers and I begin to fret,

Would she notice my nervous glances?  
As I retreat into the cool calming stream,  
My body aches and my instincts scream.  
I know I must move but do not like my chances.

While working up the nerve to approach,  
Another sees her wonder and takes a step.  
Blood boiling from a hidden depth  
I silently swim towards and past a roach.

My competitor notices my intent  
And detours to meet me at the bank.  
As we look into each other's eyes  
I throw out my chest and let my anger vent.

Mimicking my actions we tangle our limbs.  
Falling back, fighting with the current,  
Breaking apart we scramble through the flow.  
He retreats and marks one of my rare wins.

Looking back for the Victor's loot.  
The spot we met is sadly empty.  
She saw our stupidity and left in a hurry,  
Leaving behind nothing but a memory and a lonely  
newt.



# Oh, the Places You'll Go!

## Life at the North Coast Regional Water Quality Control Board

Throughout the last five months, I've had the opportunity to explore California's north coast on behalf of water quality. It's been remarkable to see the diversity of this region's landscapes, people, and (of course) water. In an attempt to capture these experiences, I've written some haikus about my favorite adventures.

### Fortuna

So many visits  
for sampling and WSP  
How I love old-growth

### Gualala

A perfect Monday  
spent searching for salmonids  
We found three steelhead

### Klamath Falls, OR

Spent two days talking  
of aphanizomenon  
Say that five times fast

### Weaverville

Out on Halloween  
dressed up despite my waders  
My costume? A cat

### San Luis Obispo

Tons of team bonding  
But too many acronyms  
Awed by Morro Bay

## Working in Sonoma County

### Legend



Office



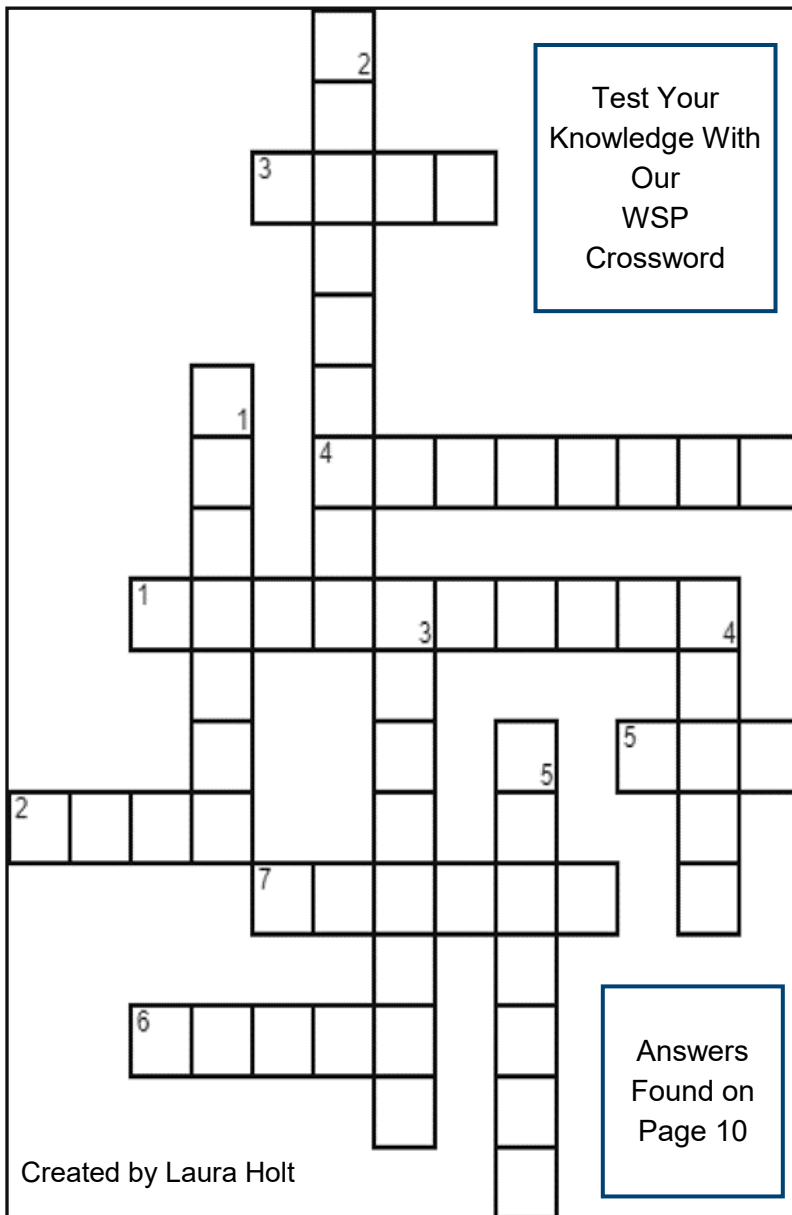
Watershed Awareness Project sites

Regional Water Board  
Pepperwood Preserve  
Bouverie Preserve

Service Layer Credits: Sources: Esri, USGS, NOAA

Created by Katy Abbott





## ACROSS

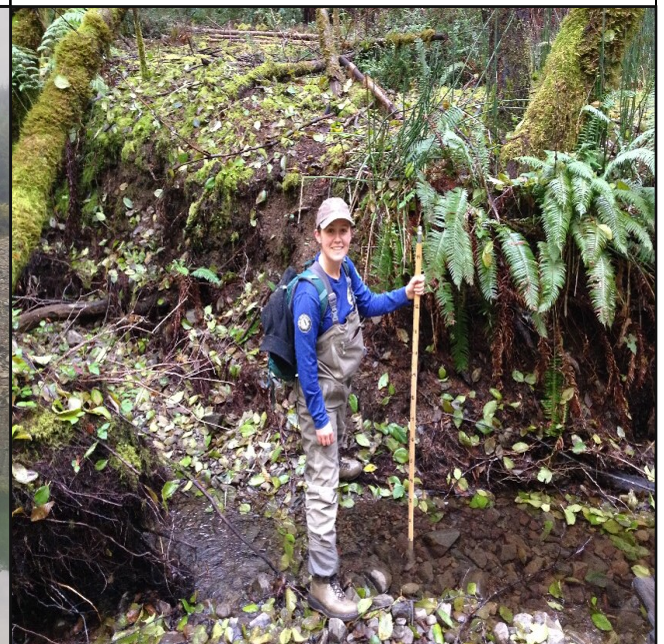
1. Adjective meaning “up running”
2. \_\_\_\_\_ and Jill went up the hill
3. I’m made up of gravel in the creek bed
4. Member’s love to walk the \_\_\_\_\_ levee when visiting Fortuna
5. Members recruit community volunteers for their \_\_\_\_\_
6. Members wear \_\_\_\_\_ pants as part of their uniform
7. Blackberry is my WORST enemy

## DOWN

1. They call me the King
2. I’m known by two names depending on where I reside
3. If I never see the ocean, I am a \_\_\_\_\_
4. Where I make my redd, I \_\_\_\_\_
5. The name of the town where WSP Members first met one another



CCC Fortuna Member Mackenzie Spencer crossing Redwood Creek.  
Photo credit : Trevor Kumec



CWPAP Member Ellen Hensel during spawner surveys.  
Photo credit: Nicole Bejar

## Invasive Species of the Eel River

Ellen Hensel

Below is a short overview of three extremely prolific non-native species that exist in the Eel River watershed today. Included is their history, physical description, and effects on native aquatic life.

### Sacramento pikeminnow (*Ptychocheilus grandis*)

The Sacramento pikeminnow was introduced into the Eel River watershed about 40 years ago. The species quickly spread and, today, exists in large numbers throughout the watershed. Adults are identified by their olive-colored body with yellow-gold fins, large protruding mouths, and deeply forked tail.

It is a hearty species, able to withstand high water temperatures and sub-par water quality. This durability, as well as its large numbers and the fact that it relies on juvenile salmonids as a main food source, makes it one of the most significant threats to salmonid survival in the Eel River watershed today(1).



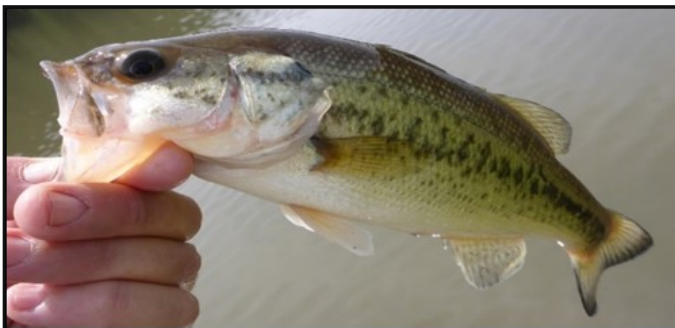
**Sacramento pikeminnow**

Photo credit: Don Loarie- [inaturalist.org/observations/101918](https://inaturalist.org/observations/101918)

### Largemouth bass (*Micropterus salmoides*)

The largemouth bass was introduced to the Eel River as a sport fish in the mid-1800s. It is olive green in color with a white underside. It has a black lateral line and a large mouth with a protruding lower jaw.

Largemouth bass can grow very large and can survive in warm waters with low oxygen levels. It will eat practically anything, including frogs, salamanders, fish, insects, even small mammals and birds. Its huge size, generalist appetite, and large population numbers, make it a significant threat to salmonids and other native aquatic species within the Eel River watershed (2).



**Largemouth bass**

Photo credit: danimen- [inaturalist.org/observations/5781109](https://inaturalist.org/observations/5781109)

### American Bullfrog (*Lithobates catesbeianus*)

The American bullfrog was first brought into California in the early 1900s. It was introduced on purpose, meant to be a food source and biocontrol for bothersome insects. It has green-brown mottled skin on its back and a grey/white/yellow underside. It has large ear drums, which appear as big circles behind each eye and can grow quite large (3).

It can survive in many environments and is a generalist when it comes to diet. It feeds on aquatic vegetation and native invertebrates, tadpoles, and amphibians, such as the threatened foothill yellow-legged frog (4). These behaviors lead to diminished habitat and decreased biodiversity overall.



**American Bullfrog**

Photo credit: bobonahill- [inaturalist.org/observations/9307375](https://inaturalist.org/observations/9307375)

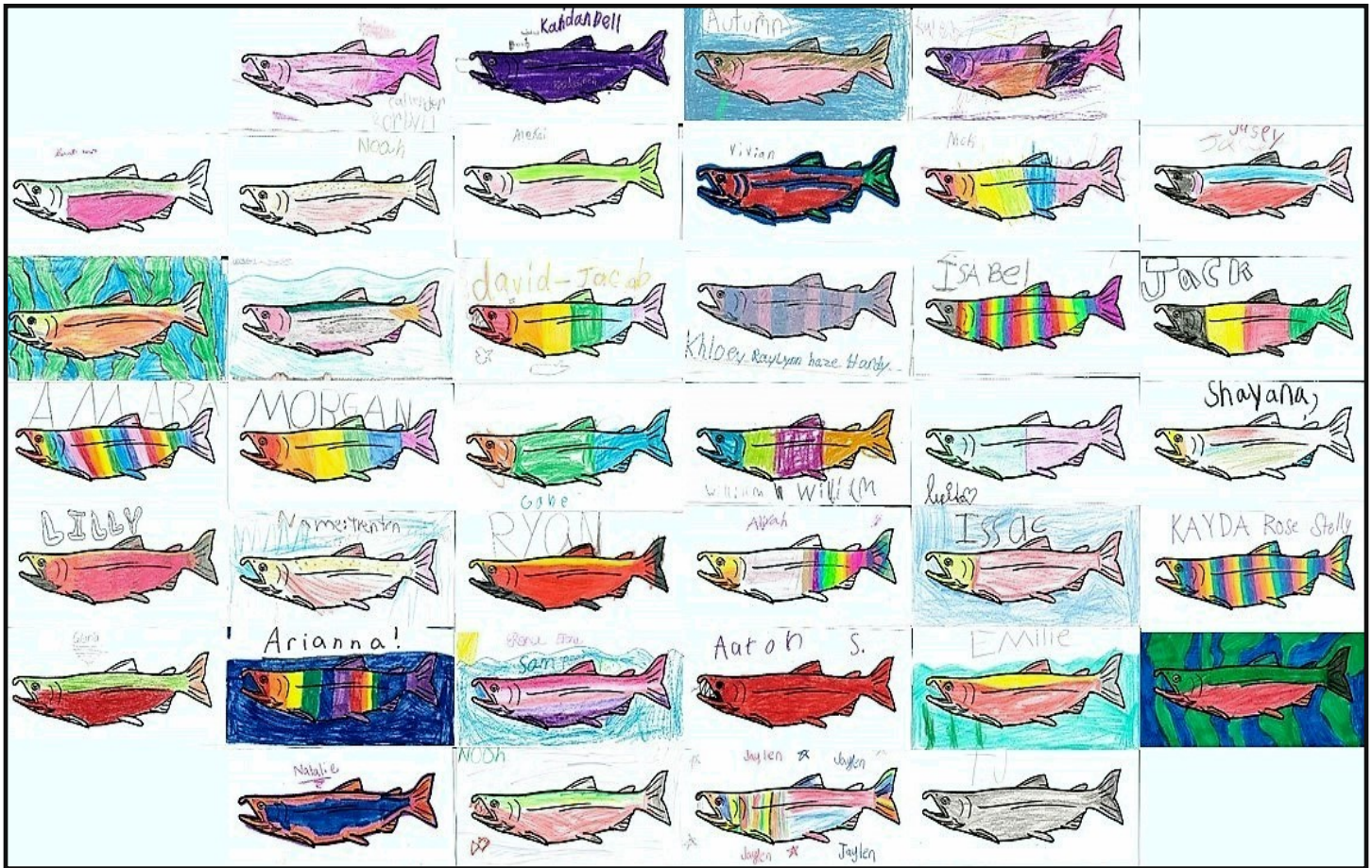
#### Citations:

1. <http://calfish.ucdavis.edu/location/?uid=113&ds=694>
2. <https://www.floridamuseum.ufl.edu/fish/discover/species-profiles/micropterus-salmoides>
3. <https://www.wildlife.ca.gov/Conservation/Invasives/Species/Bullfrog>
4. <https://naldc.nal.usda.gov/download/49725/PDF>



## A Day in the Life of a Wonders of Watersheds (WOW! )Teacher

Mackenzie Spencer



CCC Fortuna Member Mackenzie Spencer preparing her WOW! lessons  
Photo credit : Trista Dowdy

These are the nametags of all of the students I taught during my Wonders of Watersheds (WOW!) lessons. Each one is a representation of the creativity each student has to offer their environment. It is so important to educate students about the importance of watersheds, especially ones that are right in their backyard. What they say is true: children are our future. I realized that the more we work in watersheds, the more help we need! By being a watershed steward, I believe that I am spreading encouragement to protect our watersheds and everything in them, and I couldn't be happier about it. I had a truly amazing time teaching these students and I am so thankful that I have been able to participate in the Watershed Stewards Program.

*"In the end we will conserve only what we love; we will love only what we understand and we will understand only what we are taught"*

*-Babe Dioum*





MESHR Member Colin Harris  
drew this on an artist's conk, which is a type of mushroom  
that grows primarily on fallen redwoods near a creek.  
Photo credit: Colin Harris



MESHR Member Colin Harris  
working at the Mad River Hatchery clipping fins.  
Photo credit: Kolby Lundgren

## The Cycle Completes

Colin Harris

Limbs heavy with early morning dew,  
My old body creaks and groans in the slight breeze  
Rippling past my brothers and sisters.  
A Marbled Murrelet feeds her chicks atop my crown  
Of branches as a raven announces her presence,  
Her shrill cry hanging in the air.  
I reach my roots deep into the soil,  
Sipping from the creek nearby.  
The taste delights me;  
The salmon have returned.  
I keep vigil as the first begin to die,  
Depositing their precious gift  
Of nutrients carried from the ocean.  
I grow taller with every season,  
Their sacrifice urging me upwards.  
As I reach higher and higher, breaking  
Into the sunlight, my old limbs  
Fall away, resting in the creek bed.  
The eggs laid by the departed hatch  
Their children seeking shelter  
Beneath my fallen branches.  
I keep the sun from warming the pool  
As I watch them grow, playfully  
Swimming, safe in my arms.  
At last they leave, ready for their journey  
To the ocean, like their ancestors before them.  
I patiently wait for their return  
For the cycle to complete.

*"Look deep into nature , and then  
you will understand everything better."*

*- Albert Einstein*



## Alumni Spotlight: Sarah Nossaman Pierce

### Year 3 & 4 Member

Interviewed by: Trista Dowdy



Left to Right: Todd Kraemer Placed at CDFW Russian River Basin Planner Office, Sarah Nossaman Pierce placed at CDFG Russian River Basin, Trevor Tollefson placed at CDFG Eureka.  
All Members of year 3.  
Photo credit: Eddy Sanchez

### What was your WSP member experience like?

In a word, transformative. It was my first experience working in resource management, and every task I faced at my placement site with the CDFW (CDFG back then) Russian River Basin Planner, Bob Coey, was new and challenging. From 1996-1998 I served two terms, working in the watershed only one year after Central CA Coast coho were listed as endangered by the state and at the time they were listed as federally threatened. I was able to share in the impressive endeavor of building the infrastructure for local assessment, restoration, and landowner outreach efforts and it seemed we were frequently forging through new territory. Bob was great about handing me the reins on some fairly intimidating projects; while it was sometimes super stressful, looking back I can see how forcing me to push my limits resulted in, by far, the most personal growth for me.

### What are a few experiences from your term that are especially memorable?

There was the time our habitat typing ran into November and we surveyed Big Sulphur Creek in a rare snow storm at 3500 feet, then warmed our frozen hands in a hot spring.

Attending the 1997 and 1998 SRF conference was memorable—even though the conference was way smaller back then, it was amazing to meet so many people who had dedicated their lives to the recovery of California's salmon. It inspired me to seek a spot on the board and I still look forward to the conference every year, this year I'll be presenting.

### What are your title and responsibilities in your current job? What is involved in a typical day?

I'm a Staff Research Associate with CA Sea Grant's Russian River Salmon and Steelhead Monitoring Program. The "typical" day varies quite a bit, and the work is challenging and dynamic so there's no risk of getting bored. Over time, I've transitioned from year-round field support to data management and analyses, reporting and communicating outcomes, public outreach, partner collaboration, grant writing, and working on general program management as part of a team. These days, I spend a lot of time in meetings. I oversee multiple summer low-flow monitoring and research efforts focused on relating over summer survival of juvenile salmon to flow-related habitat conditions so, thankfully, I get out in the field more in the summer. On a rare and happy day in the winter and spring, I get pulled away from office duties to fill in on a spawner survey or at the smolt traps.

Story continued on page 10 ➡

**Alumni Spotlight: Sarah Nossaman  
Pierce, continued from page 9**

**What's your favorite part of your job now?**

Over the past 20 years, it's been awesome to witness the evolution of salmonid recovery efforts on the North Coast. When I became an AmeriCorps member, my mentor had an annual operating budget of around \$10,000 to support CDFW's assessment and restoration of critical habitat for the entire Russian River basin. Today, salmon and steelhead recovery efforts in this Ev(ESU) are robust, built on the collaboration of dozens of multi-disciplinary partners and supported by millions of dollars a year. I've also had the pleasure of seeing the integration of more women into the field, and more scientifically-founded methods and empirical evidence incorporated into recovery efforts. It's inspiring to know that WSPers are entering a more sophisticated natural resource management field today due to the dedication and passion of those that forged this path over the past decades. This perspective helps to keep me motivated and working towards an even

**How did WSP help prepare you for the work you are currently doing?**

WSP was my foot in the door and gave me a chance to prove my worth in a county where natural resource conservation and restoration jobs were few and far between. My two years with WSP helped me gain the professional, interpersonal and soft skills I needed to become competitive in the field. I have no doubt that everything I learned while in WSP, and the opportunities that the program opened up for me, built the foundation for where I am today.

**What advice would you give current WSP Members?**

The most progressive mentors are often the busiest, so look for opportunities to take initiative where possible. Pay attention to what's going on around you and where the needs are, and don't be afraid to ask questions. Also, in my experience, there are more dedicated people looking for entry-level positions in the field of resource management than there are jobs. If you want to be remembered and recommended, don't just do your job, but shine; stand out by bringing something special to what you do. Everyone has unique skills that can add something useful to the collective effort. Find yours and use them bring an advantage to the work you do.



**Alumni Sarah Nossaman Pierce placed at  
CDFG Russian  
River Basin out in the field during her term with WSP.**

**ACROSS:**

1. Anadromous
2. Jack
3. Redd
4. Eel River
5. WAP
6. Brown
7. Waders

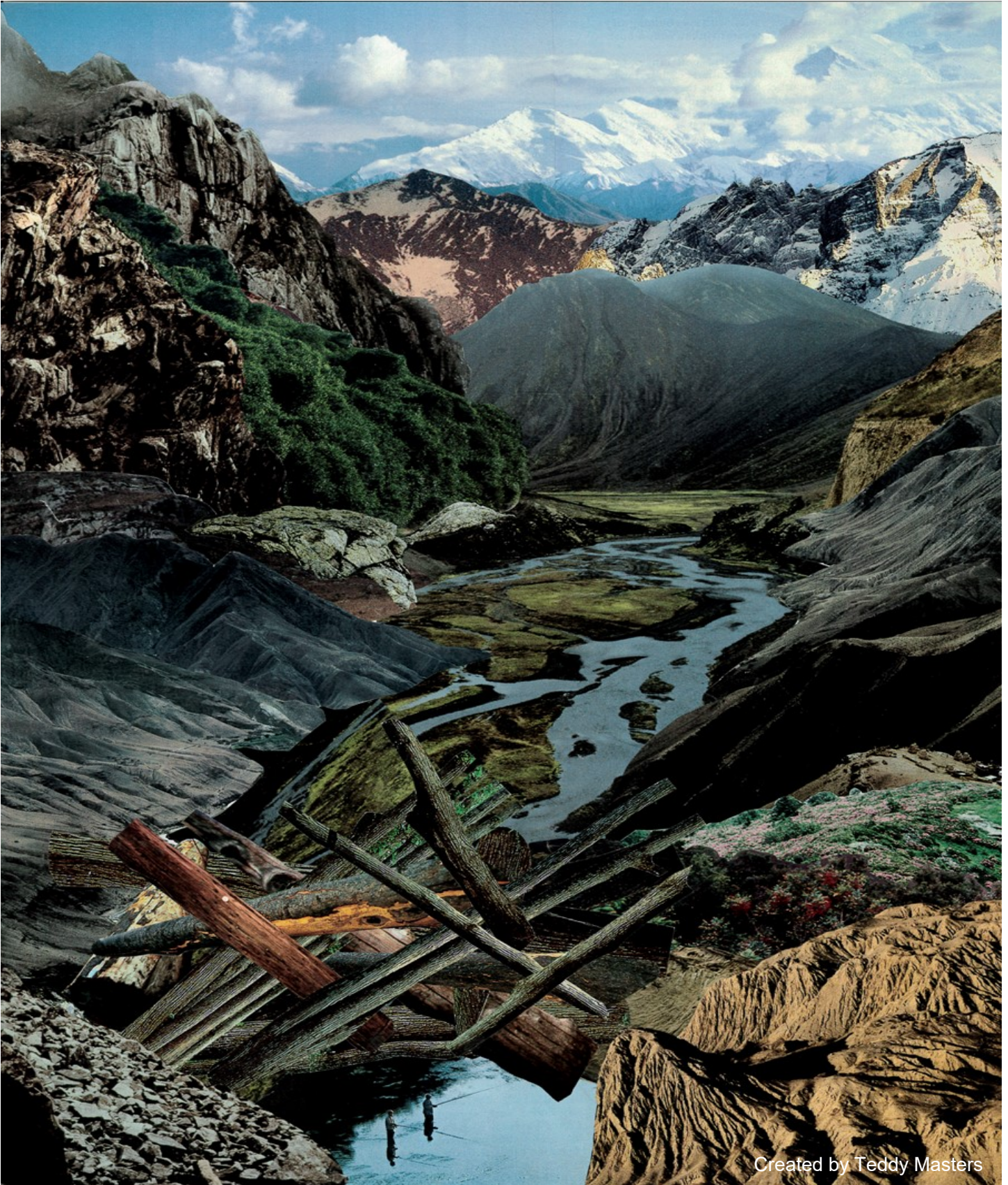
**DOWN:**

1. Chinook
2. Steelhead
3. Resident
4. Spawn
5. Fortuna

**Answers to  
the WSP  
Crossword  
on  
Page 5**



**Wood is Good**  
Teddy Masters



Created by Teddy Masters

Inspired by all the wonderful (yet obnoxious) large woody debris I had to maneuver during this past spawner season.



## A Beaver's Tale

Cameron Hayvaert

A salmon was swimming her way up a creek  
Where she climbed past the deer, muskrat and mink,  
With puzzled looks they paused from their drink  
To ask, "You're going the wrong way don't ya think?"

She swam right on past them, she swam 'round the bend;  
Her time was near up, it was close to her end,  
But she was determined to find a good friend  
And suitable substrate to lay her eggs in.

She came to a pond where a brown beaver stood,  
He looked up and cried out, "Now this tree  
tastes good!"  
While chewing his way through some soft cotton-wood,  
"You must be new to the neighborhood."

"What's the reason for swimming the wrong way?  
I ask if I may, do you have somewhere to stay?  
Looks like you've had quite the long day,  
My pond is your pond along this highway."

"Thank you Mr. Beaver," She said with delight,  
"You see, I've been swimming all day and all night  
And I can't stop now or I might lose sight  
Of the creek with which I must reunite.

The water I trek to is where I was born  
And before I had left it, an oath there was sworn  
That I would swim back with this body worn  
To dig a new redd by Saturday morn'.

I return from the ocean to pass on anew  
Five thousand eggs in this water so blue  
Where they can grow big and quite healthy too,  
So this journey I must continue, but thank you."

He nodded in encouragement and bid his farewell,  
Then turned to himself, "What a story to tell!  
To my wife Michelle and grandkids as well -  
All who will listen to an old beaver's tale."

As he shared his story with young and with old  
About the strong salmon and her journey bold,  
He noticed a rather odd change unfold,  
His tail grew tenfold – what a sight to behold!

He smacked on the water for all to hear,  
He packed down his dam to last through the year,  
And maintained his pond for all critters near  
To pass on their journeys or to rest without fear.



So the next time you see a beaver's large tail,  
Remember the salmon who swam with the  
whales  
In her silver scales up the creek she prevailed  
To give rise to new fry in an old beaver's tale.



Graphic credit:  
<https://www.pinterest.com>



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## About the Watershed Stewards Program

Since 1994, the Watershed Stewards Program (WSP) has been engaged in comprehensive, community-based, watershed restoration and education throughout coastal California.

WSP was created in 1994 by California Department of Fish and Wildlife (CDFW) biologists, educators, and the California Conservation Corps to fill critical gaps in scientific data collection, in-stream restoration, and watershed education. In collaboration with landowners, tribal communities, teachers, community members, nonprofit organizations, and government agencies, WSP works to revitalize watersheds that contain endangered and threatened salmonid species (Chinook salmon, Coho salmon, and steelhead trout) by using state-of-the-art data collection and watershed restoration techniques. WSP also engages members in education, outreach, and volunteer recruitment efforts to increase the capacity of partner organizations. WSP currently has Members working from the Oregon border to the Santa Monica Mountains.

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## WAP oh WAP

Trista Dowdy

WAP oh WAP, where will you be?

My Members are requesting me

You may be near, you may be far,

But wherever you are I will be

My Members have worked continually

To provide the community with a benefit you see

A benefit to all salmonids that depend on anadromy

Which means going from the salt to the freshwater you  
see

This is why my Members in the community you'll see

Working diligently not aimlessly

Asking volunteers like you and me

To meet at a creek as early as can be

To benefit a watershed for all to see

Planting natives and pulling those that aren't meant to be

These WAP's improve not only a creek for you and me,  
but salmonids to be

Therefore, wherever that WAP may be you may find me

Supporting a Member

Who has worked so hard on such a small fee

To improve watersheds for all to see especially those who  
rely on anadromy

It's just the life of WSP

### Definitions:

WAP— Watershed Awareness Project . A volunteer event each Member organizes that directly benefits a historically salmon or steelhead bearing stream.

## Looking at the Bigger Picture

Trista Dowdy

So far this year, District B has done amazing things outside of their everyday work at their placement sites to help improve our watersheds for salmonid species.

This year, District B's WAP's have resulted in;

- 1,000 native trees being planted along 4 different watersheds in Sanoma and Humboldt Counties.
- Miles of invasive species have been removed along 4 different watersheds in Humboldt County.
- 150 woodpiles have been constructed along Franz Creek in Sanoma County to help promote watershed health and species biodiversity after the Tubbs fire.

In order to reach these achievements, District B Members have recruited over 250 volunteers in total for this term and have made a difference in their local watersheds.



Year 24 Region I District B Members



THANK YOU  
FOR BEING  
SO AMAZING!

Graphic credit: <http://positivedoodles.tumblr.com/post/143484180336/drawing-of-a-purple-fish-with-green-fins>

## Contact Us

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[wsp.info@ccc.ca.gov](mailto:wsp.info@ccc.ca.gov)

### Find out more about the program on our website:

[ccc.ca.gov/watershed-stewards-program/](http://ccc.ca.gov/watershed-stewards-program/)

## Our Mission

The Watershed Stewards Program's (WSP) mission is to conserve, restore, and enhance anadromous watersheds for future generations by linking education with high quality scientific practices.

## WSP Staff

**Program Manager:** Zia Schatz

**Region I Program Coordinator:** Greg Poulton

**Region II Program Coordinator:** Jody Weseman

**Office Manager:** Katey Schmidt

## Credits

**Editor:** Trista Dowdy, District B Team Leader

**Become a WSP Member! Learn more about the program and find our application at:**  
**[ccc.ca.gov/watershed-stewards-program/](http://ccc.ca.gov/watershed-stewards-program/)**